Service Decision June 16, 2009

The Service has determined that the following action is necessary to avoid jeopardizing the delta smelt from project operations (consistent with and as further explained in the biological opinion):

The OMR flows shall be no more negative than -3,500 cfs on a 14-day running average. Simultaneously, OMR flow shall be no more negative than -4,375 cfs on a 5-day average. Combined exports will go up between 300 and 400 cfs per day.

If the combined salvage reaches 75% of the amount of salvage left to reach the take concern level (i.e if combined salvage reaches 707), then the projects will operate to the previous OMR determination, -1,800 cfs, and the SWG will reconvene to determine if a further recommendation to the Service is needed.

Analysis

These flows are necessary to avoid jeopardizing the delta smelt based on the following criteria:

1. Location/distribution of the delta smelt population

The Service concludes that some delta smelt may have moved out of the South and Central Delta but is still concerned that some delta smelt may still be present in the Central or South Delta and within the zone of entrainment of the CVP and SWP pumps for the following reasons:

The most recent 20 mm survey (Survey 7) ran from June 1 through 4. Results show that 195 delta smelt were collected at 16 stations, stations 520, 703, 704, 706, 707, 716, 718, 719, 720, 723, 724, 801, 804, 809, and at two supplemental stations, stations 798 and 799. The delta smelt collected in this survey were distributed in the North Delta around Cache Slough and around Decker Island in the Lower Sacramento River. The previous 20 mm survey (Survey 6) ran from May 18 through 22. A total of 48 delta smelt were collected at eight stations, stations 504, 519, 716, 719, 723, 804, 809, and 919. These fish were distributed in the Cache Slough area as well as in the Central Delta and Suisun Bay.

It is difficult to reliably infer the distribution of the delta smelt population from the results of these 20 mm surveys, however, because the abundance of the delta smelt is currently very low (as discussed below). Thus, it is subject to significant scientific uncertainty and cannot be used with a high degree of confidence as a basis for setting the OMR flow target. Even if this survey does accurately reflect the current distribution of the delta smelt population, this distribution may show that a portion of the delta smelt population has moved downstream out of the South and Central Delta. However, there still may be a portion of the delta smelt population in the central Delta as indicated by salvage, which is discussed below.

As discussed below, significant salvage, approaching the biological opinion's incidental take limit, occurred at the CVP and SWP facilities during May 2009. Salvage has dropped some in June, indicating that the salvage event of high entrainment in late May may have passed. That salvage is continuing at the facilities in June demonstrates that delta smelt are located in the central or south Delta and within the zone of influence of the CVP and SWP pumping facilities

and an additional salvage event may be possible. This salvage is especially significant, as evidence of the distribution of the delta smelt, because OMR flows were tightly limited during May and the first part of June(first by the VAMP and later under Component 2 of the biological opinion) and thus the zone of influence of the CVP and SWP pumping facilities was also limited. In addition, the sampling at the CVP and SWP facilities has a higher efficiency than in-river sampling methods, such as the 20 mm surveys, and, as a result, is likely to provide better evidence of the distribution of the delta smelt population.

2. Abundance

The Service concludes that the delta smelt is at critically low levels of abundance and, as a result, the species is more vulnerable to high entrainment events. The best available scientific and commercial data shows that the abundance of the delta smelt has suffered a precipitous decline since 2000. The most recent (2008) Fall Midwater Trawl abundance index was 23, the lowest ever recorded. Other measures of abundance, such as the numbers of delta smelt captured in the 20 mm surveys, are also very low compared to historical 20 mm trawl catches. The abundance of the species is not expected to recover this year because this is the third consecutive year of dry or critically dry conditions, and, under such conditions, the habitat area available to the delta smelt is reduced and that habitat is less likely to contain the necessary food, temperatures, and flows that the delta smelt need to complete their life cycle.

3. Entrainment

The Service concludes that the risk that significant numbers of delta smelt will be entrained at the CVP and SWP remains high. The Service also concludes that, at the current low level of abundance, the delta smelt population cannot tolerate even moderate levels of take (compared to the levels of take observed historically in recent decades). Thus, the Service concludes that, to avoid jeopardizing the continued existence of the species, it has determined that exports should increase gradually to avoid another high entrainment event.

Significant numbers of delta smelt were entrained in May, despite very tight limits on OMR flows. For the month of May, 423 juvenile delta smelt were collected at the export facilities. This amount of incidental take exceeded the "level of concern" (299 fish) identified in the biological opinion's incidental take statement for salvage in May. It approached the cumulative take limit for May of 449 fish. Both the level of concern and the incidental take limit are keyed to the level of abundance measured in the Fall Midwater Trawl index and thus reflect the current, very low level of abundance of the delta smelt.

So far in June, a total of 123 delta smelt have been entrained at the export facilities, to bring the cumulative take to 546. Combined salvage has dropped recently with 24 delta smelt caught at the facilities from June 9 through June 14. The "level of concern" for June is 759 fish and the cumulative take limit for June is 1139 fish. Therefore, the remaining number of delta smelt that would need to be caught in combined expanded salvage to reach the concern level is 213. The 75% of this remaining salvage to reach the concern level is 707. This value was chosen because it would indicate an entrainment event was occurring and more protective actions would be needed prior to reaching the concern level. Pursuant to the biological opinion, the Bureau of Reclamation would need to pursue reconsultation if the take limit were reached. Only after reconsultation would the Service be able to determine if levels of incidental take

higher than those set in the biological opinion would avoid jeopardy. It is significant that this level of incidental take occurred despite the very tight restrictions on OMR flows during May. In addition, it should be noted that the levels of salvage reported reflect only a portion of the total mortality associated with entrainment.

Like May, the month of June is historically a period when high numbers of delta smelt have become entrained at the export facilities. In light of the significant take that occurred during May, and the current data on the distribution of the delta smelt population (as discussed above), the risk of a high entrainment event remains high. Less restrictive OMR flow targets could lead to a significant increase in entrainment and jeopardize the continued existence of the species. Recent data showing low entrainment at the facilites are encouraging and show that the likelihood of a large entrainment event may be reduced.

4. Other criteria

Starting with the Service's May 26, 2009 Determination through the June 9, 2009 Determination, the required OMR flow was -1,500 on a 14-day average with the 5-day average to be no more negative than -1,875. During this time time, the 14-day average has not been met on any day and the 5-day average has been met for 7 of 13 days. The recent trend for both averages has been more negative and away from the Service determination. The June 9, 2009 Determination required OMR to be -1,800 cfs on a 14 day average and -2,250 on a 5-day average. The 5-day average OMR will be at or more positive than -2,250 cfs on June 14 and thereafter. The 14-day average OMR will be at or more positive than -1,800 cfs on June 16 and thereafter. The 5-day average was met, since the OMR flow was under -2,250 on June 14, but the 14-day average had not yet been met as of June 15, 2009. Also, the Vernalis flow standard under D-1641 may not have been met. The Service's understanding is that the Vernalis flow requirement as identified in D-1641 for June is 24 days at 2,280 cfs and 6 days at 1,420 cfs. On June 1, the Vernalis flow was approximately 1,600 cfs. Since then, Vernalis flow has dropped to below 1200 cfs and continues to drop. Reclamation may have difficulty in meeting D-1641 and is investigating the need for a temporary urgency change (TUC). If this occurs, Reclamation would need to reinitiate consultation. Water temperatures in the Delta are above the range that most successful spawning takes place, which is 12-18 degrees C. Any spawning that is currently occurring is not likely to result in a viable cohort of delta smelt. As temperatures increase, delta smelt move out of the South and Central Delta and may become subject to entrainment. The current temperature in Clifton Court Forebay is 21.3 degrees C. Once temperatures at Clifton Court Forebay reach 25 degrees C for three consecutive days, the actions under the RPA will end.

Conclusion

After reviewing all of the available information, the Service concludes that the OMR flow target set out in this Decision is necessary to protect the delta smelt and avoid jeopardy. The Service also concludes that an alternative, less restrictive OMR flow target would not adequately protect the delta smelt or avoid jeopardy. To the contrary, the Service finds that a less restrictive OMR flow target could jeopardize the continued existence of the species by causing a high entrainment event and drawing delta smelt into the less suitable habitat of the central and south Delta. The Service concludes that the OMR flow target set by this Decision is

not "unnecessarily restrictive," but rather is the minimum OMR flow target necessary to ensure compliance with the requirements of the Endangered Species Act. These conclusions are based on the best scientific and commercial data available, the explanation set out in this Decision, and the recommendations of the Smelt Working Group ("SWG") for the week of June 15, which are hereby incorporated by reference.

As explained in detail in the biological opinion, the purpose of this OMR flow target is to prevent the kind of high entrainment events that have occurred historically. The entrainment of larval and juvenile delta smelt at the CVP and SWP pumping facilities is one of the three major factors (related to the operation of the CVP and SWP) that is affecting the long-term viability of the delta smelt. Thus, to protect the species and avoid jeopardy, the CVP and SWP must be managed to avoid such high entrainment events, especially when, as now, the abundance of the delta smelt is very low.

Without a sufficiently protective OMR flow target, the risk of a high entrainment event is currently very high because, as discussed above, the best available scientific and commercial data shows that a significant proportion of the delta smelt population is located in the central or south Delta (within the zone of influence of the CVP and SWP pumps), significant levels of salvage occurred in May despite tight restrictions on OMR flows, and June has historically been a month with high levels of salvage. The effect of a high entrainment event on the species at this time could be catastrophic because the delta smelt is already at critically low levels of abundance. While the distribution from the latest 20mm survey may show at a number of delta smelt have moved out of the South and Central Delta, the continuing salvage at the facilities demonstrates that some delta smelt are present in the South Delta and could be subject to an entrainment event. A protective OMR flow target must be set before a high entrainment event begins because, once such an event starts, it may not be possible to stop it by reducing pumping at the CVP and SWP facilities. Finally, an OMR flow target is also necessary to ensure that delta smelt are not drawn into the central or south Delta, where they are more vulnerable to high water temperatures, predation, entrainment at the facilities, and potential adverse contaminant effects.

The basis for the range identified in RPA Component 2 (that is, between -1,250 and -5,000 cfs) is set out in the biological opinion and its Appendix B. The Service has selected the specific OMR flow target of -3,500 cfs within that range because (1) salvage over the past week has dropped, possibly indicating that the entrainment event of late May and into June has passed; (2) this OMR flow target is still restrictive and will protect most of the delta smelt in the Central Delta from becoming entrained; (3) By keeping OMR flows at this level and having combined exports go up 300 to 400 cfs per day, the remaining delta smelt in the South and Central Delta will be able to move out of these areas to the Confluence Area and Suisun Bay to complete their life history while delta temperatures are relatively cool. The ramping of exports will gradually increase the current geographical extent and influence of the hydrologic entrainment footprint of the CVP and SWP pumping facilities. A higher OMR flow target will increase the hydrologic entrainment footprint but will also allow the proportion of this year's delta smelt population move out of the Central and South Delta, where they would be susceptible to high temperatures, predation, entrainment at the facitilies, and potential adverse contaminant effects These actions should result in a level of entrainment that should be protective of most of the delta smelt population, since the 20 mm survey has shown there were some delta smelt found outside the zone of entrainment. However, as described above, the uncertainty with the 20 mm survey may not provide accurate results and entrainment at the facilities will continue to be monitored to ensure that the incidental take concern level and take limit are not reached.

The Service finds that there is no basis to conclude that an alternative, less restrictive OMR flow target would adequately protect the delta smelt and avoid jeopardy. As discussed above, a significant proportion of the delta smelt population is within the zone of influence of the pumps and significant salvage of delta smelt occurred during May despite tight OMR flow restrictions. An alternative, less restrictive OMR flow target would result in higher levels of salvage, increase the number of delta smelt drawn into the central and south Delta, and could lead to a high entrainment event of kind that the Service has concluded have had a significant, population-level effect on the species. In addition, an alternative, less restrictive OMR flow target would not adequately protect the delta smelt in light of the species' current, very low level of abundance.

In particular, the results of the most recent 20 mm survey are not sufficient to support an alternative, less restrictive OMR flow target. As discussed above, the distribution of the delta smelt cannot be reliably inferred from the results of that survey, at the current low levels of abundance and given the extremely limited number of delta smelt actually caught during the survey. Moreover, to the extent that the results of the most recent 20 mm survey could be interpreted to suggest that delta smelt are not present in the central and south Delta, that interpretation has already been disproven by the significant levels of salvage that occurred during May.

As discussed above, the Service concludes that the OMR flow target set out in this Decision is necessary to protect the delta smelt and avoid jeopardy, and that an alternative, less restrictive OMR flow target would not adequately protect the delta smelt or avoid jeopardy. This conclusion is based on the qualitative analysis of the best available scientific data discussed above using the Service's expertise in the biology of this species, the recommendations of the experts on the Smelt Working Group and the Water Operations Management Team, and the Service's past experiences with the management of the CVP and SWP. It is not based on a quantitative population or viability model of the delta smelt because no such model is currently available for the delta smelt.

The Service recognizes that significant scientific uncertainties surround all of these issues.. In particular, the Service recognizes that only imperfect information exists on the current distribution of the delta smelt population. Nonetheless, the Service must set a protective OMR flow target that avoids jeopardy based on the best scientific data currently available. It cannot wait for the development of a quantitative model of the delta smelt population. The Service must also set these OMR flow targets using an anticipatory strategy because, once a high entrainment event begins to occur, it may already be too late to adjust operations to stop it and such an event would jeopardize the continued existence of the delta smelt at its current low level of abundance. For these reasons and the reasons described above, the Service concludes that an alternative, less restrictive OMR flow target would not adequately protect the delta smelt or avoid jeopardy.

Potential Harms to Humans, the Community, and the Environment

The United States District Court for the Eastern District of California recently issued a preliminary injunction requiring the Service to "explain why alternative, less restrictive OMR flows would not adequately protect the delta smelt . . . ." Findings of Fact and Conclusions of Law and Order re Plaintiffs' Motion for Preliminary Injunction ("PI Order"), Docket No. 94 (May 29, 2009), at 49. That explanation is set out above.

The Court also enjoined the Service from setting "unnecessarily restrictive" OMR flow targets "unless and until FWS first considers the harm that these decisions and actions are likely to cause humans, the community, and the environment . . . ." PI Order at 48-49. The Court clarified that the Service is not required to "independently evaluate and/or weigh the harms to humans, the community, and the environment versus any potential harm to the species." PI Order at 49. Because the Service has concluded that the OMR flow target set by this Decision is not "unnecessarily restrictive," it is not required by the Court's order to consider harms to humans, the community, and the environment here.

Nonetheless, the Service acknowledges that there may be socio-economic impacts in the CVP service area in the event that operating to the OMR flow target results in less exports than may otherwise occur in this third year of drought. As discussed above, however, the Service has concluded that this OMR flow target is necessary for compliance with the Endangered Species Act. In considering the potential harms identified by the Court, the Service has not conducted any economic or "cost/benefit" analysis of the effects of these OMR target flows.